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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PITTMAN, ZIDIA T

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 06/07/2002

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/922,936

Applicant(s)

MASTER ET AL.

Examiner

Zidia Pittman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 1-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group II (claims 18-30) in Paper No. 7 is acknowledged.

Claims 1-17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group I, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "26" has been used to designate both substrate and main air pressure supply. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the flux fluid chamber must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: the specification denotes reference numeral "26" as *substrate* and *main air pressure supply*.

Appropriate correction is required.

Claim Objections

Claim 18 is objected to because of the following informalities: claim requires a flux dispense nozzle connected to the flux fluid whereas it appears, according to the description of the invention, that the flux dispense nozzle would be connected to the flux fluid chamber. Appropriate correction is required.

Claim 26 is objected to because of the following informalities: states that the needle opening must have a diameter range between about 5 *micron* and about 60 *micron*. Examiner assumes this to be a typographical error and suggests that the claim be amended to recite that the needle opening must have a diameter range between about 5 *microns* and about 60 *microns*. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18-24 and 27-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Stoops (USPN 5,615,828).

Stoops discloses an apparatus for applying flux. The flux is contained in a precisely pressurized reservoir and passes through a filter, tubing, and fitting to be distributed through main manifold. A flow sensor monitors the flow rate. The reservoir can also have a piston which is above the flux and prevents air entrapment in the flux. The flux is then distributed to each high-speed valve or regulator through a fitting mounted on the main manifold. Each valve or regulator is then actuated at a specified pulse rate to distribute flux to an individual tip or to a tip manifold assembly. The controls define the pulsed streams or tip manifold which will be activated for the particular board width. Sensor can also be used if an end-of-dispense signal is desired before sensor is deactivated as may occur if the board is palletized. The pulsed flux application can be controlled to be applied, or not applied, at any location on the board as the board travels past the pulsed application. Through the use of low solids flux, and pulsing at a range of on-times of one to forty milliseconds and off-times of three to two hundred milliseconds, a very thin layer of flux is applied to the selected surface of the board. For example, tests have suggested application of a coating of flux in the amount of 0.0012 g/in^2 with a pressurized fluid at five psi and a pulse ratio of fifteen milliseconds on-time and one hundred milliseconds of off-time. An operational control provides for easy operator interface and for control of the mode (SETUP, MANUAL or AUTO), width selection, pressure selection, and pulse rate selection. The operating interface also displays the actual values for fluid pressure, fluid flow, reservoir level, active tip manifold segments, and system safety or error conditions. Of course still other parameters or

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conditions can be added to the control as desired. (abstract; Figures 4, 6, and 7; column 5 line 50 – column 6 line 19; column 6 lines 51-58)

With respect to the limitations requiring the flux having a particular viscosity range, flux being dispersed at a particular valve pressure range, particular functions of the data processing device, flux maintained at a particular fluid pressure range, and particular substrates the apparatus is utilized to disperse the flux, the examiner submits that these limitations do not further limit the structural aspects of the invention. Furthermore, the reference need only teach the structural limitations of the apparatus with those structural limitations capable of performing the functions indicated. Stoops teaches the structural limitations required by the claims as indicated above.

Claims 18-23 and 27-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Napor et al (USPN 3,741,150).

Napor et al teaches an automatic flux spray dispenser. In order to maintain a constant supply of flux at a uniform viscosity and pressure at the nozzle, a preferred flux reservoir and supply system are incorporated. The system includes automatic nozzle controls and a flux supply system for the nozzle. The preferred reservoir in the present system comprises the generally vertical pipe-like reservoir having its lower end coupled to the circulating pump. In order to maintain the flux at a uniform viscosity and with a homogenous mixture, a portion of the flux is continuously circulated through the hose connecting the pump outlet and the open upper end of the flux reservoir. A preferred form of pump is capable of circulating the liquid flux with a relatively constant pump pressure output and which resists wear or corrosion from typical corrosive and abrasive

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flux materials. (abstract; Figures 2 and 7; column 2 line 24 – column 3 line 20; column 3 lines 47-61)

With respect to the limitations requiring the flux having a particular viscosity range, flux being dispersed at a particular valve pressure range, particular functions of the data processing device, flux maintained at a particular fluid pressure range, and particular substrates the apparatus is utilized to disperse the flux, the examiner submits that these limitations do not further limit the structural aspects of the invention. Furthermore, the reference need only teach the structural limitations of the apparatus with those structural limitations capable of performing the functions indicated. Napor et al teaches the structural limitations required by the claims as indicated above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stoops as applied to claim 24 above.

Stoops teaches all the limitations of claims 25 and 26 as stated above for claim 24 except for teaching the flux needle having a diameter range between about 0.1 mm to about 0.6 mm and the flux needle having a needle opening having a diameter range between about 5 microns and about 60 microns.

Stoops teaches the tip has a precision orifice in the range of 0.003" to 0.010" diameter. (column 7 lines 16-21)

In the absence of superior or unexpected results, the tip of Stoops would read on the needle of the instantly claimed invention.

At the time of the invention, it would have been obvious to modify the tip of Stoops to having a diameter range between about 0.1 mm to about 0.6 mm and the tip having an opening having a diameter range between about 5 microns and about 60 microns in order to effectively coat the substrate with flux.

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Burke et al (USPN 5,226,962) and Hollesen et al (USPN 5,065,692) are cited as of interest.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zidia Pittman whose telephone number is (703) 305-1248. The examiner can normally be reached on Monday – Thursday and alternate Fridays from 8:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn, can be reached at (703) 308-3318. The official fax phone number for the organization where this application or proceeding is assigned is (703) 305-7718. The unofficial fax number for art unit 1725 is (703) 305-6078.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

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06/02/02


TOM DUNN
SUPERVISORY PATENT EXAMINER
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